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ABSTRACT

Trends in enrollments and degrees for physics and astronomy students are examined, based on the American Institute of Physics' annual Survey of Enrollments and Degrees. A total of 745 physics degree-granting institutions and 67 astronomy degree-granting departments were contacted. Information is included on: changes in the number of colleges granting physics degrees, physics degrees awarded by academic year, 1973-1984; undergraduate and graduate enrollments and degrees by institution type, 1973-1985; introductory physics enrollments by physics-degree-granting schools by geographic region, 1980-1985; introductory physics enrollments, 1984-1985; undergraduate physics majors by geographic region and type of institution, 1984-1985; full- and part-time graduate enrollment by type of institution, 1975-1985; trends in U.S. and foreign graduate physics students, 1975-1985; unfilled assistantships for first-year graduate physics students, September 1984; number of physics degrees granted by sex and minority group status, 1983-1984; and trends in astronomy enrollments and degrees, 1975-1985. The data indicate that after several years of decline or no changes in physics degree production, increases occurred at all levels. Astronomy enrollments appear to have declined, based on both undergraduate majors and first-year graduate enrollments. (SW)

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by Susanne D. Ellis

AIP Pub. No. R-151.22 June 1985

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The survey, which contacts each of the 745 physics degree-granting institutions annually, has been conducted for over two decades and has the distinction of summarizing enrollment and degree data from nearly 100% of those colleges and universities. Ten years ago the survey was expanded to include astronomy degree-granting departments, of which there were 67 in 1984–85.

Table I classifies institutions according to the highest physics degree granted, and presents the yearly changes in those numbers for the most recent five-year period. The declining number of master's institutions can primarily be attributed to decisions by a university's administration to terminate master's degree programs that had either very few, or no graduate students enrolled, but continue to offer a bachelor's degree in physics. On the other hand, the most recent increase in doctoral programs involved three master's-granting institutions—Hunter College of the C.U.N.Y., Maharishi International University in Iowa, and the University of Texas at Arlington, which expanded their graduate physics curricula to include the doctoral level. The number of institutions that offer only a bachelor's degree in physics tends to fluctuate as a result of local demand. Large industrial employers frequently influence the initiation or termination of an undergraduate physics program at a nearby college or university.

Table I. Institutions by highest physics degree offered, 1980–1985.

Academic year	Doctorate granting	Master's granting	Bachelor's granting
1980–81	168*	103	492
1981–82	167**	104	485
1982–83	164**	94	488
1983–84	165**	92	490
1984–85	168**	90	487

Five of these institutions have two physics doctorate-granting departments; the second one is generally an applied physics department. They are Stanford U., U. of CA-Davis, U. of CA-San Diego, Harvard U., and Cornell U.

***Four of these institutions have two physics doctorate-granting departments. They are Stanford U., U. of CA-Davis, Harvard U., and Cornell U.*

After several years of decline or of no change in physics degree production, **Figure I** clearly indicates increases at all levels. Four trends represent the three levels at which physics degrees are granted, because we distinguish between terminal master's degrees and those granted enroute to a higher physics degree. For the class of 1984, the increases in degree production ranged from 2% to 8%.

Fig. I. Physics degrees awarded by academic year 1973–1984.

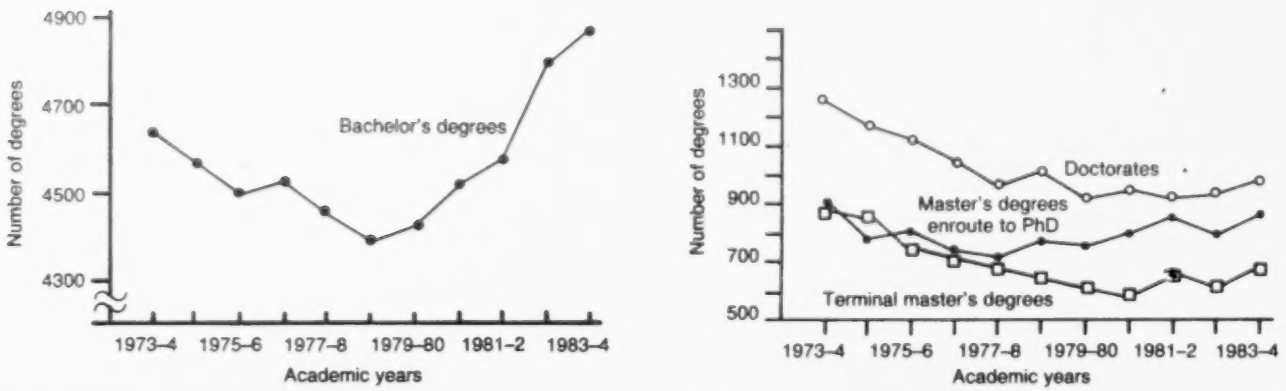

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Table II. Physics enrollments and degrees awarded by academic year 1973–1985.

Academic year	Number of physics degrees granted (July 1 to June 30) Bachelor's	Master's	Doctor's	Undergraduate physics-major enrollment Juniors	Seniors	Graduate physics-student enrollment* Total	1st year
1973–74	4652	1772	1236	5858	5108†	11 119	2680
1974–75	4571	1650	1167	5660	4909†	10 410	2668
1975–76	4487	1570	1111	5888	4922†	10 372	2646
1976–77	4517	1469	1051	5711	4930†	9 991	2624
1977–78	4457	1422	971	5820	4975††	9 835	2499
1978–79	4416	1428	1033	5835	4964	9 813	2458
1979–80	4440	1370	912	5696	4942	9 647	2439
1980–81	4513	1387	927	5905	5091	9 934	2564
1981–82	4558	1476	912	6386	5372	10 173	2637
1982–83	4795	1426	921	6299	5580	10 429	2630
1983–84	4878	1521	971	6303	5658	10 922	2855
1984–85				6601	6009	11 337	2863

*Includes part-time students.
†This total has been adjusted by 500 students who were seniors for more than one year.
††This total has been adjusted by 300 students who were seniors for more than one year.

Table III. Undergraduate and graduate enrollments and degrees by institution type, 1973–1985.

Academic year	Number of physics degrees granted (July 1 to June 30) Bachelor's	Master's	Doctor's	Undergraduate physics-major enrollment Juniors	Seniors	Graduate physics-student enrollment* Total	1st year
			Doctorate granting institutions				
1973–74	2155	1387	1236	2844	2484	9 759	2169
1974–75	2191	1318	1167	2780	2420	9 295	2205
1975–76	2182	1249	1111	2983	2505	9 241	2163
1976–77	2184	1186	1051	2862	2502	8 867	2182
1977–78	2218	1164	971	2851	2590	8 852	2138
1978–79	2158	1183	1033	2937	2579	8 864	2107
1979–80	2142	1151	912	2696	2491	8 744	2072
1980–81	2123	1161	927	2765	2568	9 062	2223
1981–82	2179	1281	912	2996	2671	9 273	2275
1982–83	2192	1210	921	2962	2645	9 524	2288
1983–84	2195	1319	971	2955	2824	10 006	2495
1984–85				3059	3105	10 357	2443
			Master's granting institutions				
1973–74	810	385		939	893	1360	511
1974–75	699	332		881	741	1115	463
1975–76	604	321		916	811	1131	483
1976–77	658	283		840	761	1078	442
1977–78	590	258		832	752	983	361
1978–79	541	245		795	694	949	351
1979–80	585	219		705	650	903	367
1980–81	589	226		868	655	872	341
1981–82	532	195		917	734	900	362
1982–83	554	216		877	752	905	342
1983–84	610	202		830	722	916	360
1984–85				974	78[illegible]	980	420
			Bachelor's granting institutions				
1973–74	1687			2075	1731		
1974–75	1681			1999	1748		
1975–76	1701			1989	1606		
1976–77	1675			2009	1667		
1977–78	1649			2137	1633		
1978–79	1717			2103	1691		
1979–80	1713			2295	1801		
1980–81	1801			2272	1868		
1981–82	1847			2473	1967		
1982–83	2049			2460	2183		
1983–84	2073			2518	2112		
1984–85				2568	2123		

*Includes part-time students.

The data on which **Figure I** is based are presented in **Table II** together with undergraduate and graduate enrollment trends. The number of physics majors in 1984–85, 6009, is higher than any of the numbers since 1972–73. First-year graduate students show no change from the previous year, while the total number of graduate students increased by 4%, which indicates that students require more time to complete their degrees. A long-anticipated increase in the number of doctorates finally materialized in 1983–84 with a 5.4% increase over the previous year.

Three types of institutions compete for undergraduate physics majors, as indicated in connection with **Table I**. Their enrollment patterns, as well as degree production, are presented in **Table III**. By comparing the junior physics majors with the following year's seniors at Ph.D.-granting institutions over a ten-year period we found considerable fluctuations in those ratios on a year-to-year basis. In fact, the seniors of 1984–85 outnumbered the 1983–84 juniors. A major contributor to this phenomenon is the gradual increase in the number of students who delay declaring their majors until their senior year.

It is well known that the number of applicants to computer-science departments as well as engineering departments at certain large universities exceeds the enrollment capacities. Consequently, many of those students who are turned away, pursue the course work of a physics major without declaring that this is their selection, and concurrently maintain a concentration in computer-science or engineering so as to keep their options open as long as possible. At the senior level the universities insist on knowing from which departments students will graduate. Thus, unless the situation in the computer-science or engineering departments has changed, students will declare themselves to be physics majors and be counted as such for the first time.

By examining the physics bachelor's degrees granted in 1983–84, we find that master's-granting institutions increased their production by 10%, while no significant changes are evident among the doctoral and bachelor's institutions. Graduate enrollments involve two types of institutions, but in 1984–85 only the master's-granting institutions reported an increase in the number of first-year students.

Having presented an overview of the physics enrollment and degree trends in the first three tables and the first figure of this report, we allow **Tables IV–XII** and the remaining figures to focus on more detailed analyses of the physics pipeline.

Table IV. Introductory physics enrollments in physics-degree-granting institutions by geographic region 1980–1985.

Geographic region†	1980–81	1981–82	1982–83	1983–84	1984–85
New England	21 766	20 228	19 124	19 147	19 710
Mid Atlantic	43 216	41 879	45 236	49 788	47 249
E. N. Central	54 663	54 430	54 410	57 721	53 802
W. N. Central	23 406	23 420	25 776	25 820	25 819
S. Atlantic	33 800	36 544	36 750	40 668	38 164
E. S. Central	15 068	16 276	14 712	15 820	15 215
W. S. Central	30 030	28 188	28 980	32 337	27 519
Mountain	21 035	23 408	25 966	27 532	25 652
Pacific	36 150	34 656	36 076	36 214	36 989
Total	279 134	279 029	287 030	305 047	290 119

†New England–Conn., Me., Mass., N. Hamp., R.I., Vt.; Middle Atlantic–N.J., N.Y., Pa.; East North Central–Ill., Ind., Mich., Ohio, Wisc.; West North Central–Iowa, Kansas, Minn., Mo., Nebr., N. Dak., S. Dak.; South Atlantic–Del., D.C., Fla., Ga., Md., N.C., S.C., Va., W. Va.; East South Central–Ala., Ky., Miss., Tenn.; West South Central–Ark., La., Okla., Tex.; Mountain–Ariz., Colo., Idaho, Mont., Nev., N. Mex., Utah, Wyo.; Pacific–Alas., Cal., Hawaii, Oreg., Wash.

Introductory physics enrollments

College freshmen with a scientific aptitude and intellectual curiosity tend to enroll in introductory physics courses irrespective of the majors they may intend to pursue at a later time. Most of the 749 degree-granting physics departments offer one or more introductory physics courses each term and collectively enroll close to 300,000 students per term. **Tables IV** and **V** focus on the distribution of those students geographically and by the design of the courses. It should be noted that introductory physics courses are also offered at an additional 1000 colleges and universities whose physics programs are insufficient for a bachelor's degree.

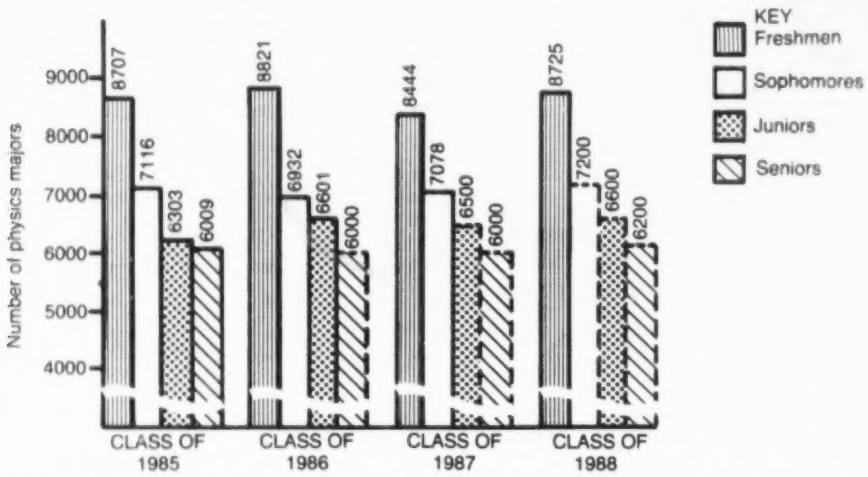
Table V shows that potential engineering majors comprise 40% of the introductory physics enrollment, and the second largest group (approximately one-quarter of the enrollment) are pre-med and other health-related majors. As colleges and universities return to more extensive science requirements in their degree programs, one can expect introductory physics enrollments to increase.

Table V. Introductory physics enrollments, 1984–85.

Enrollment in introductory physics courses designed for:	Institution type* I N	I %	II N	II %	III N	III %	Total N	Total %
engineering majors	24 935	35.3	15 974	37.0	80 225	45.5	121 134	41.8
physical science majors	16 505	23.3	10 241	23.7	30 631	17.4	57 377	19.8
biology, health-related majors	18 723	26.5	10 118	23.5	41 782	23.7	70 623	24.3
other	10 560	14.9	6 837	15.8	23 588	13.4	40 985	14.1
Total introductory enrollment N	70 723		43 170		176 226		290 119	
Total introductory enrollment %		24.4		14.9		60.7		100%

*"Institution type" indicates the highest degree offered; type I = bachelor's degree, type II = master's degree, type III = doctorate.

Fig. II. Actual and projected number of undergraduate physics majors



Note: Each cluster of bars shown in **Figure II** *depicts the freshmen, sophomores, juniors and seniors of four successive graduating classes. The most recent estimate of freshman physics majors is 8725 and refers to September 1984. Based on the attrition of earlier classes 6200 of them are expected to become senior physics majors in 1987-88 and are presented above as the 'class of 1988.'*

Undergraduate physics majors

At most institutions students are not required to declare their majors until the beginning of the junior year. However, taking into account the requirements for a physics bachelor's degree, the great majority of physics department chairpersons can estimate the numbers of freshmen and sophomores who are likely to be physics majors in their departments. The attrition rates between freshmen and seniors have been monitored over a ten-year period, making it possible to project classes of senior physics majors until 1988. Thus the first set of bars in **Figure II** follows the 1981–82 freshman physics majors through four years of undergraduate study to become the graduating class of 1985. Last September's estimate of freshman physics majors indicated a 3% increase over the previous year, and is projected to yield 6200 seniors who will become the class of 1988.

Concentrating on the 1984–85 undergraduate physics majors, **Table VI** offers a detailed distribution of them both geographically and by type of degree-granting institution. The last column of this table, "Fifth-year undergraduates," consists of over 700 students who need an additional summer or term to complete their degree requirements. Such delays can be attributed to any of a number of reasons; among them are completing the senior level on a part-time basis or having transferred from a junior college. Among the 1984 physics bachelors, each of these two groups comprised 10%. Thus, by separating those 762 seniors from the others, physics majors at each level are counted only once. The overall attrition between the freshman and senior levels is approximately 30% as indicated in **Figure II**.

However, this overall attrition rate ranges from 22% to 40% when examined for each of the three types of institutions separately. By comparing the totals for seniors listed in the lower portion of **Table VI** with the corresponding numbers of freshman physics majors of 1981–82, we find a 22% attrition at the doctorate-granting institutions, a 33% attrition at the master's-granting institutions, and a 40% attrition at the four-year colleges.

Table VI. Undergraduate physics majors by geographic region and type of institution, 1984–85.

Geographic region*	Estimated** no. of freshmen	Estimated** no. of sophomores	Number of juniors	Number of seniors	Fifth-year undergraduates
New England	691	585	577	573	47
Mid Atlantic	1 602	1 287	1 052	947	100
E. N. Central	1 279	1 024	980	895	96
W. N. Central	702	600	523	497	52
S. Atlantic	1 404	1 137	957	724	78
E. S. Central	330	301	319	277	47
W. S. Central	703	559	559	459	63
Mountain	650	537	481	533	60
Pacific	1 364	1 048	1 153	1 104	219
Total	8 725	7 078	6 601	6 009	762
Doctorate-granting inst.	3 932	3 068	3 059	3 105	349
Master's-granting inst.	1 193	955	974	781	164
Bachelor's-granting inst.	3 600	3 055	2 568	2 123	249

** See Table IV for explanation of geographic region.*
***Estimates of potential physics majors made by the physics department chairpersons.*

Graduate enrollment

When the total graduate physics enrollment reversed its ten-year decline in 1980 to resume an upward trend, it was the foreign students who were the major contributors to this change in trend. Although there is a small group of foreign students among the undergraduate physics majors, the great majority of foreign students enter the U.S. with the equivalent of bachelor's degrees and the intention to become doctoral candidates. **Table VII** focuses on the citizenship of successive groups of first-year graduate physics students, and shows that over a ten-year period the percentage of foreign students nearly doubled. The absolute numbers presented in **Table VII** indicate a trend reversal for U.S. students two years ago while the number of foreign students continues to increase, but at a reduced rate.

In 1984–85 the number of foreign students at all levels of graduate physics study combined was over 4000, and approximately half of them held teaching assistantships in the physics departments that enrolled them. **Table VIII** presents a geographic distribution within the U.S. of the foreign graduate students for each of the two types of graduate institutions.

Table VII. Trend in entering U.S. and foreign graduate physics students, 1975–1985.

Academic year	No. of first-year graduate students U.S.	Foreign	Total	% foreign students of total
1975–76	2095	551	2646	20.8
1976–77	1987	637	2624	24.2
1977–78	1851	648	2499	26.0
1978–79	1840	618	2458	25.2
1979–80	1700	739	2439	30.3
1980–81	1720	844	2564	32.9
1981–82	1654	983	2637	37.3
1982–83	1576	1054	2630	40.1
1983–84	1763	1092	2855	38.2
1984–85	1747	1116	2863	39.0

A more detailed view of the total graduate physics enrollment is presented in **Table IX**, which shows the distribution of students by type of institution and by study status. As evident from the ten-year trend, master's institutions have always enrolled a large proportion of part-time graduate students, whereas at doctoral departments, part-time students generally comprise less than 10%.

Table VIII. Foreign graduate physics students and those holding teaching assistantships among them, by region and type of institution*, 1984–85.

Geographic region		Doctorate granting institutions: Total no. of foreign grad. students	Doctorate granting institutions: Total no. of foreign TA's	Master's granting institutions: Total no. of foreign grad. students	Master's granting institutions: Total no. of foreign TA's	All institutions: Total no. of foreign grad. students	All institutions: Total no. of foreign TA's
New England		483	223	18	12	501	235
Mid Atlantic		905	430	4	1	909	431
E. N. Central		632	276	99	57	731	333
W. N. Central		204	104	27	19	231	123
S. Atlantic		378	234	27	13	405	247
E. S. Central		99	58	27	18	126	76
W. S. Central		354	247	51	24	405	271
Mountain		222	115	8	4	230	119
Pacific		534	250	32	21	566	271
Total	N	3 811	1 937	293	169	4 104	2 106
	%		50.7%		57.7%		51.3%

Table IX. Full-time and part-time graduate physics enrollment by type of institution, 1975–1985.

Academic year	Total number of graduate students, Institution type* II: Full-time	II: Part-time	II: Sub-total	III: Full-time	III: Part-time	III: Sub-total	Total
1975–76	628	503	1131	8439	802	9241	10 372
1976–77	576	507	1083	8119	789	8908	9 991
1977–78	546	437	983	8174	678	8852	9 835
1978–79	468	481	949	8185	679	8864	9 813
1979–80	550	353	903	8059	685	8744	9 647
1980–81	484	388	872	8302	760	9062	9 934
1981–82	543	357	900	8555	718	9273	10 173
1982–83	566	339	905	8712	812	9524	10 429
1983–84	569	347	916	9285	721	10006	10 922
1984–85	604	376	980	9647	710	10357	11 337

**Institution type indicates the highest physics degree offered: type II = master's degree, type III = doctorate.*

Table X. Unfilled assistantships for first-year graduate physics students, September 1984.

Geographic region*	Doctoral departments with unfilled assistantships: 0	1–2	3–5	>6	No. of unfilled ass'tships	No. of 1st yr. grad. students	Master's-granting depts. with unfilled assistantships: 0	1–2	3–5	No. of unfilled ass'tships	No. of 1st yr. grad. students
New England	17	3	0	0	3	328	4	0	0	0	16
Mid Atlantic	26	3	0	0	5	460	3	3	1	6	25
E. N. Central	17	3	1	0	8	421	18	5	0	8	128
W. N. Central	12	2	0	0	3	133	8	4	1	10	46
S. Atlantic	20	3	2	0	12	256	12	3	0	5	70
E. S. Central	5	4	0	1	13	76	4	3	0	4	18
W. S. Central	14	0	2	0	8	203	9	1	0	1	56
Mountain	7	7	0	1	18	180	2	1	0	1	5
Pacific	17	2	1	2	22	386	5	2	1	8	56
Total	135	27	6	4	92	2 443	65	22	3	43	420

**See Table IV for explanation of geographic region.*

The availability of financial support is linked to the small proportion of part-time physics students. In recent years, the number of assistantships for first-year graduate physics students actually exceeded the demand for them, and **Table X** offers details by showing how unevenly they are distributed. The 49 Ph.D.-granting institutions in the Northeast reported eight unfilled assistantships, whereas 35 institutions in the Southeast were unable to fill 25 assistantships by September 1984. Unfilled assistantships at the master's-granting departments indicate a similarly uneven distribution. **Table X** includes the regional distribution of first-year graduate students so as to show that if all assistantships were filled, the enrollment at doctoral departments would be only 4% larger, but master's departments would increase their enrollment by 10%.

Degrees granted

The median number of years of graduate study required to complete a physics doctorate remains between five and six years and has a range from three to more than ten years. However, since 1982, the median increased from 5.2 to 5.5 years. The high correlation between the first-year graduate students at Ph.D.-granting institutions and the number of doctorates granted five years later is the basis for our projection presented in **Figure III**. In recent years, between 42% and 46% of a given year's entering graduate students complete their doctorate five or six years later. The rapid increase in foreign graduate students began in 1979, so that possible changes in the number of years of graduate study and the attrition rate are only beginning to emerge. Thus, we expect the number of physics doctorates to be conferred during the mid to late 1980s to be between 950 and 1050 per year.

The data summarized in three rows of **Table III** are presented in greater detail in **Table XI**. This table compares the contributions that three types of institutions make to the production of new physicists. Each year the smallest group of graduates is the one receiving master's degrees enroute to higher physics degrees from master's institutions. Consequently, these graduates are obliged to transfer to Ph.D. institutions to continue their studies.

Terminal master's degrees are primarily granted by the Ph.D. institutions, rather than by master's institutions as shown in **Table XI** which indicates a 3:1 ratio for that degree production.

Fig. III Actual and projected number of physics doctorates granted, 1973–1989

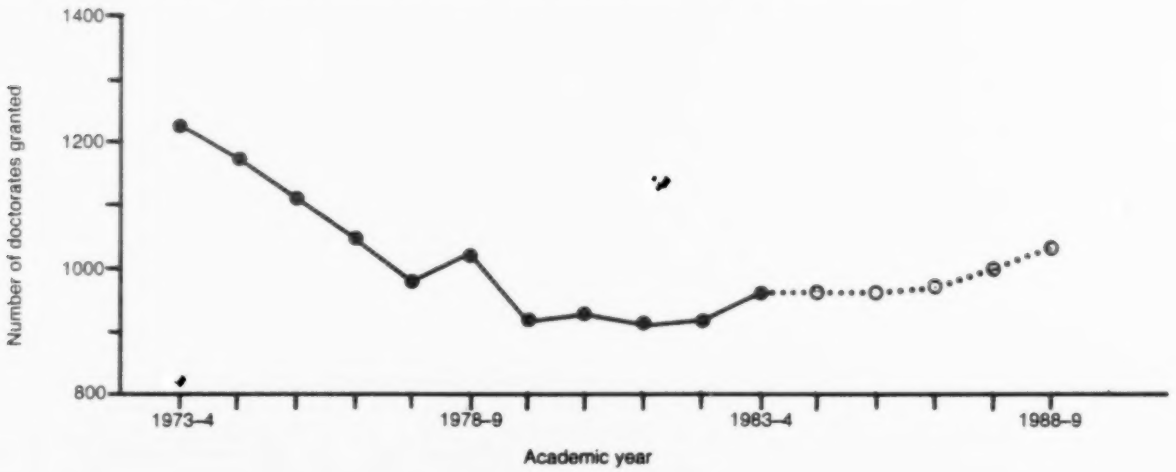


Table XI. Physics degrees by type of institution and geographic region, 1983–84.

Geographic region*	Bachelor's degrees			Master's degrees		Terminal master's degrees		Doctorates
	Institution type**			Institution type**		Institution type**		Institution type**
	I	II	III	II	III	II	III	III
New England	177	22	321	6	96	5	52	142
Mid. Atlantic	437	38	406	0	185	3	53	186
E. N. Central	351	153	246	14	155	50	119	186
W. N. Central	222	90	114	4	24	16	30	39
S. Atlantic	317	91	263	13	100	18	64	106
E. S. Central	102	56	66	1	27	10	8	13
W. S. Central	135	63	136	4	36	27	37	66
Mountain	76	11	196	0	30	3	41	45
Pacific	256	86	447	6	165	22	97	188
Subtotal	2 073	610	2 195	48	818	154	501	971
				866		655		
Total	4 878			1 521				971

**See Table IV for explanation of geographic region.*

***Institution type indicates the highest physics degree offered; type I = bachelor's degree, type II = master's degree, type III = doctorate.*

Another detail shown in **Table XI** is the geographic distribution of all physics degrees granted in 1983–84. The total of 971 doctorates represents a 5% increase over the previous year; the regions primarily responsible for this increase are New England, the Southwest, and the Pacific.

Closely tied to the data we collect and analyze on foreign student enrollment in physics programs are our data on minority groups, because a majority of the members are foreign citizens. We define minority groups as those who have a small but noted representation among the physics degree recipients, a definition that clearly applies to women physics graduates. Thus **Table XII** focuses on the most recent academic year, 1983–84, and lists specific minority groups by sex, but irrespective of citizenship. The sources for this information are (1) a report of women and black degree recipients from physics department chairpersons, and (2) identification with minority groups by individual graduates. The second source forms part of two student surveys* conducted annually by the American Institute of Physics. The response rates from these two sources differ significantly; only between 55% and 65% of the students return their questionnaires, whereas over 90% of the physics departments complete their questionnaires. Thus one needs to view the number of minority degree recipients, other than blacks, as lower limits.

**"Survey of Physics and Astronomy Bachelor's Degree Recipients" AIP Pub. No. R-211.15.*
"Graduate Student Survey" AIP Pub. No. R-207.16.

Table XII. Number of physics degrees granted by sex and minority group* status, 1983–84.

Type of degree	Sex	Total no. of degrees	Black	Am. Ind.	Mex. Am.	Hispanic	Oriental	Asian Ind.	Arab
Bachelor's	Men	4210	102	13	10	19	74	10	17
	Women	668	22	1	2	4	17	2	0
	Total	4878	124	14	12	23	91	12	17
Master's enroute	Men	774	7	0	1	10	74	16	17
	Women	92	0	0	1	2	8	6	2
	Total	866	7	0	2	12	82	22	19
Terminal master's	Men	578	10	0	1	2	14	14	7
	Women	77	1	0	0	0	5	2	1
	Total	655	11	0	1	2	19	16	8
Doctorate	Men	903	15	2	1	9	66	32	26
	Women	68	0	1	0	1	14	3	1
	Total	971	15	3	1	10	80	35	27

**Minorities in AIP surveys are defined as groups with a low representation in the physics community, but ones whose participation has aroused considerable interest.*

ASTRONOMY

The number of degree-granting astronomy departments was 66 in 1984–85, and all of them contributed their information to the Survey of Enrollments and Degrees over a ten-year period. Twenty-seven of them are combined physics and astronomy departments, where difficulties of definition can arise when astronomy students are granted physics degrees, and subsequently affect trend data.

Table XIII. Trend in astronomy enrollments and degrees, 1975–1985

Academic year	No. of astronomy degrees granted (July 1–June 30)				Undergraduate astronomy major enrollment		Graduate astronomy enrollment	
	Bachelor's	Master's enroute	Terminal master's	Doctor's	Juniors	Seniors	Total	1st year
1975–76	172	56	35	93	305	280	780	165
1976–77	184	58	35	96	290	270	790	170
1977–78	177	64	31	93	295	270	803	171
1978–79	165	42	42	90	270	249	710	145
1979–80	165	27	27	106	262	242	698	154
1980–81	156	34	24	82	275	238	686	164
1981–82	161	54	15	70	252	224	647	142
1982–83	138	61	22	81	274	232	670	178
1983–84	137	51	22	74	242	217	688	154
1984–85					239	212	716	151

The information presented in **Table XIII** is similar in format to the physics data presented in **Table II**, but unlike physics, the astronomy enrollments appear to have declined as indicated both by the undergraduate majors and by the first-year graduate students.

By dividing the institutions on the basis of the highest astronomy degree granted, we find that the doctoral institutions outnumber the other two types of institutions combined and enroll three-quarters of the astronomy majors. **Table XIV** offers additional details on the astronomy pipeline.

Table XIV. Astronomy* enrollments 1984–85 and degrees 1983–84 by type of institution.**

		Type I	Type II	Type III	Total
Astronomy departments	Combined	14	3	10	27
	Separate	6	2	31	39
	Total	20	5	41	66
Astronomy degrees	Bachelor's	31	10	96	137
	Master's enroute	–	3	48	51
	Terminal master's	–	3	19	22
	Doctor's	–	–	74	74
Astronomy enrollments	Introd. courses for science majors	426	68	2 422	2 936
	Introd. courses for nonscie. majors	4 963	1 302	39 006	45 271
	Introd. astronomy courses offered in physics departments	–	–	–	59 913
	Total introductory enrollments				108 120
	Junior astronomy majors	43	14	182	239
	Senior astronomy majors	36	9	167	212
	First-year graduate students	–	10	141	151
	Total graduate enrollment	–	20	696	716

This survey includes only degree-granting astronomy departments.

***"Institution type" indicates the highest astronomy degree offered; type I = bachelor's degree, type II = master's degree, type III = doctorate.*